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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/677,221	10/03/2003	Takashi Ohsako	2003-1364A	8585
513	7590	03/09/2005	EXAMINER	
WENDEROTH, LIND & PONACK, L.L.P.			GARCIA, JOANNIE A	
2033 K STREET N. W.			ART UNIT	
SUITE 800			PAPER NUMBER	
WASHINGTON, DC 20006-1021			2823	

DATE MAILED: 03/09/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/677,221

Applicant(s)

OHSAKO ET AL

Examiner

Joannie A. Garcia

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3, 5, 6 and 10 is/are rejected.
- 7) ☒ Claim(s) 4 and 7-9 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |  |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)            |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>20031003</u> . | 6) <input type="checkbox"/> Other: ____  |

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Claims 1-10 are objected to because of the following informalities:

In claim 1, line 2, “gate electrode”, and “metallic silicide layer”, should be preceded by --a--.

Claim 1 recites the limitation "surface of the metallic" in line 4. There is insufficient antecedent basis for this limitation in the claim.

In claim 1, lines 4-5, “metallic silicide” should be followed by --layer--.

In claim 1, line 6, “spacer” should be preceded by --a--.

In claim 1, line 6, “oxide film” should be preceded by --an--.

Claim 1 recites the limitation "side wall of the gate electrode" in lines 6-7. There is insufficient antecedent basis for this limitation in the claim.

In claims 2-5, 9, and 10, line 3, “heat treatment” should be preceded by --a--.

In claim 5, line 4, “oxidizable gas” should be preceded by --an--.

In claim 5, line 4, “less than 100ppm” should be preceded by --of--.

In claims 6 and 7, line 3, “heat” should be preceded by --a--.

In claim 6, line 4, “temperature” should be preceded by --a--.

In claim 6, line 4, “time of 30 to 40sec” should be preceded by --a--.

In claim 9, line 2, “,” after “Claim 1” should be replaced with --,--.

In claim 9, line 4, “oxidizable gas” should be preceded by --an--.

In claim 10, line 4, “temperature” should be preceded by --a--.

In claim 10, line 5, “pressure of 13 to 65pa” should be preceded by --a--.

Appropriate correction is required.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-3 are rejected under 35 U.S.C. 102(e) as being anticipated by Enomoto et al (US 2003/0032284 A1).

Enomoto et al discloses a process for forming a gate electrode 7 having a metallic silicide layer 13 on a semiconductor substrate 1 (Figure 3, and Paragraphs 0069 and 0072), a process of decreasing grain boundaries on a surface of the metallic silicide layer at least a portion of which is exposed by performing a heat treatment in a nitrogen, or argon gas atmosphere (Paragraphs 0072-0073), and a process for forming a spacer 13/15 on a side wall of the gate electrode, wherein a spacer could be made of either a silicon oxide material, or a silicon nitride material (Figures 3-4, and Paragraphs 0003, and 0071).

Claims 5, 6, and 10, are rejected under 35 U.S.C. 103(a) as being unpatentable over Enomoto et al as applied to claims 1-3 above, and further in view of the following comments.

Enomoto et al discloses performing a heat treatment in an oxidizable gas on the metallic silicide layer (Paragraph 0073). Enomoto et al discloses the claimed invention except for performing said heat treatment in an oxidizable atmosphere of less than 100 ppm, and performing said heat treatment at a temperature of 700 °C to 800 °C for a time of 30 sec to 40 sec at a pressure of 13 to 65 Pa. It would have been obvious to one having ordinary skill in the

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art at the time the invention was made to determine a suitable amount of the oxidizable atmosphere, and a suitable time, temperature and pressure, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

In addition, the selection of a suitable amount of the oxidizable atmosphere, and a suitable time, temperature and pressure, is obvious because it is a matter of determining optimum process conditions by routine experimentation with a limited number of species of result effective variables. These claims are prima facie obvious without showing that the claimed ranges achieve unexpected results relative to the prior art range. *In re Woodruff*, 16 USPQ2d 1935, 1937 (Fed. Cir. 1990). See also *In re Huang*, 40 USPQ2d 1685, 1688 (Fed. Cir. 1996)(claimed ranges or a result effective variable, which do not overlap the prior art ranges, are unpatentable unless they produce a new and unexpected result which is different in kind and not merely in degree from the results of the prior art). See also *In re Boesch*, 205 USPQ 215 (CCPA) (discovery of optimum value of result effective variable in known process is ordinarily within skill or art) and *In re Aller*, 105 USPQ 233 (CCPA 1995) (selection of optimum ranges within prior art general conditions is obvious).

Note that the specification contains no disclosure of either the critical nature of the claimed amount, time, temperature and pressure, or any unexpected results arising therefrom. Where patentability is said to be based upon particular chosen amount, time, temperature and pressure, or upon another variable recited in a claim, the Applicant must show that the chosen amount, time, temperature and pressure, are critical. *In re Woodruff*, 919 F.2d 1575, 1578, 16 USPQ2d 1934, 1936 (Fed. Cir. 1990).

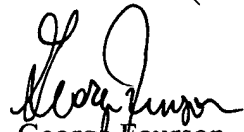
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Claims 4, and 7-9, would be allowable if rewritten to overcome the objection(s) set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joannie Garcia whose telephone number is (571) 272-1861. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Olik Chaudhuri, can be reached on (571) 272-1855. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
George Fourson  
Primary Examiner  
Art Unit 2823

  
JAG

March 6, 2005

GFourson  
Primary Examiner